

What is claimed is:

1. A calcium carbonate product for use in coating compositions to provide a surface finish having high sheet gloss, the product comprising:

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first calcium carbonate particles having a first particle size distribution having a first mean, and

10 second calcium carbonate particles having a second particle size distribution having a second mean, the first and second means having a difference of about 0.1 microns to about 0.2 microns,

the first calcium carbonate particles and the second calcium carbonate particles being provided respectively in a weight ratio from about 50:50 to about 80:20.

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2. The calcium carbonate product according to claim 1, wherein the weight ratio of the first calcium carbonate particles to the second calcium carbonate particles is about 60:40.

20 3. The calcium carbonate product according to claim 1, wherein the first calcium carbonate particles and the second calcium carbonate particles are aragonitic precipitated calcium carbonate (PCC) particles.

25 4. The calcium carbonate product according to claim 1, wherein the first calcium carbonate particles have an average particle size (APS) of about 0.4 microns and the second calcium carbonate particles have an average particle size (APS) of about 0.5 microns.

5. The calcium carbonate product according to claim 2, wherein the first calcium carbonate particles have an average particle size (APS) of about 0.4 microns and the second calcium carbonate particles have an average particle size (APS) of about 0.5 microns.
- 5 6. The calcium carbonate product according to claim 4, wherein the first calcium carbonate particles have an average particle size (APS) of about 0.4 microns and the second calcium carbonate particles have an average particle size (APS) of about 0.5 microns.
7. A paper coating pigment comprising:
- 10 first calcium carbonate particles having a first particle size distribution having a first mean, and
- 15 second calcium carbonate particles having a second particle size distribution having a second mean, the first and second means having a difference of about 0.1 microns to about 0.2 microns
- the first calcium carbonate pigment and the second calcium carbonate pigment being provided respectively in a weight ratio from about 50:50 to about 80:20.
- 20 8. The paper coating pigment according to claim 7, wherein the weight ratio of the first calcium carbonate pigment to the second calcium carbonate pigment are provided is about 60:40.

9. The paper coating pigment according to claim 7, wherein the first calcium carbonate pigment and the second calcium carbonate pigment are aragonitic precipitated calcium carbonate (PCC) pigments.

5 10. The paper coating pigment according to claim 7, wherein the first calcium carbonate particles have an average particle size (APS) of about 0.4 microns and the second calcium carbonate particles have an average particle size (APS) of about 0.5 microns.

10 11. The paper coating pigment according to claim 8, wherein the first calcium carbonate particles have an average particle size (APS) of about 0.4 microns and the second calcium carbonate particles have an average particle size (APS) of about 0.5 microns.

12. The paper coating pigment according to claim 9, wherein the first calcium carbonate particles have an average particle size (APS) of about 0.4 microns and the second calcium carbonate particles have an average particle size (APS) of about 0.5 microns.

13. A process for producing a paper having high sheet gloss, comprising steps of:

- 20 a) providing first calcium carbonate particles having a first particle size distribution having a first mean, and
b) providing second calcium carbonate particles having a second particle size distribution having a second mean, the first and second means having a difference of about 0.1 microns to about 0.2 microns,

- c) mixing the first calcium carbonate particles and the second calcium carbonate particles respectively in a weight ratio from about 50:50 to about 80:20 to form a pigment blend,
- d) mixing the pigment blend mixture with at least one binder to form a coating slurry,
- 5 e) coating a paper with the coating slurry to form a coating, and
- f) drying and calendering the paper to form a coated paper having high sheet gloss.

14. The process according to claim 13, wherein the weight ratio of the first calcium carbonate particles to the second calcium carbonate particles is about 60:40.

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15. The process according to claim 13, wherein the first calcium carbonate particles and the second calcium carbonate particles are aragonitic precipitated calcium carbonate (PCC) particles.

16. The process according to claim 13, further comprising steps of providing a clay and
15 mixing the clay with the coating mixture in step c) in an amount ranging from about 15 weight percent to about 70 weight percent.

17. The paper coating pigment according to claim 13, wherein the first calcium carbonate particles have an average particle size (APS) of about 0.4 microns and the second calcium 20 carbonate particles have an average particle size (APS) of about 0.5 microns.

18. The paper coating pigment according to claim 14, wherein the first calcium carbonate particles have an average particle size (APS) of about 0.4 microns and the second calcium carbonate particles have an average particle size (APS) of about 0.5 microns.
- 5 19. The paper coating pigment according to claim 15, wherein the first calcium carbonate particles have an average particle size (APS) of about 0.4 microns and the second calcium carbonate particles have an average particle size (APS) of about 0.5 microns.
- 10 20. The paper coating pigment according to claim 16, wherein the first calcium carbonate particles have an average particle size (APS) of about 0.4 microns and the second calcium carbonate particles have an average particle size (APS) of about 0.5 microns.
- 15 21. The paper product produced-by-the-process according to claim 13.
- 20 22. A method of improving sheet gloss of a paper product comprising a step of incorporating composition of claim 1 to a slurry for coating a base paper.
23. A method of improving sheet gloss of a paper product comprising a step of incorporating composition of claim 5 to a slurry for coating a base paper.
24. A method of improving sheet gloss of a paper product comprising a step of incorporating composition of claim 9 to a slurry for coating a base paper.